

Amendment Dated September 10, 2007  
Serial No. 10/657,654

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IN THE CLAIMS

Claims 1-21. (Canceled)

Claim 22. (New) A network device, comprising:

a first plurality of line interface units interfaced with a first plurality of subscriber premises equipment over a first type of physical medium, said first type of physical medium comprising a combination of a first type of metallic link and a first physical layer protocol, said first plurality of line interface outputting first signals received via the first type of physical medium;

a first framer associated with the first plurality of line interface units and specific to the first type of physical medium, said first framer receiving the first signals output from the first plurality of line interface units and reconstructing first frames formatted according to the first physical layer protocol; and

a first universal frame mapper associated with the first framer, said first universal frame mapper receiving the first frames formatted according to the first physical layer protocol and reassembling first universal frames for processing by the network device.

Claim 23. (New) The network device of claim 22, wherein the first universal frames are Generic Framing Procedure (GFP) frames.

Claim 24. (New) The network device of claim 22, further comprising:

a second plurality of line interface units interfaced with a second plurality of subscriber premises equipment over a second type of physical medium, said second type of physical medium comprising a combination of a second type of metallic link and a second physical layer protocol, said second plurality of line interface outputting second signals received via the second type of physical medium;

a second framer associated with the second plurality of line interface units and specific to the second type of physical medium, said second framer receiving the second signals output from the second plurality of line interface units and reconstructing second frames formatted according to the second physical layer protocol; and

Amendment Dated September 10, 2007  
Serial No. 10/657,654

a second universal frame mapper associated with the second framer, said second universal frame mapper receiving the second frames formatted according to the second physical layer protocol and assembling second universal frames for processing in common with the first universal frames by the network device.

Claim 25. (New) The network device of claim 22, wherein both the first universal frames and the second universal frames are Generic Framing Procedure (GFP) frames.

Claim 26. (New) The network device of claim 25, further comprising a switch fabric to switch the GFP frames.

Claim 27. (New) The network device of claim 24, further comprising a third universal framer that receives the first and second universal frames and extracts protocol data units from the first and second universal frames.

Claim 28. (New) The network device of claim 27, wherein both the first universal frames and the second universal frames are Generic Framing Procedure (GFP) frames, and wherein the protocol data units are service level protocol data units.

Claim 29. (New) The network device of claim 28, further comprising a plurality of service mappers, one service mapper for each type of service level protocol data unit to be handled by the network device, and wherein the service mappers map the service level protocol data units to an optical physical medium for transmission over an optical physical layer protocol via an optical line interface unit.

Claim 30. (New) The network device of claim 24, further comprising an optical line interface unit interfaced with an optical transmission medium; and

switching circuitry interconnected between the optical line interface unit and the first and second universal frame mappers.

Amendment Dated September 10, 2007  
Serial No. 10/657,654

Claim 31. (New) The network device of claim 11, wherein the switching circuitry is configured to switch Generic Framing Procedure (GFP) frames between the optical line interface unit and the first and second universal frame mappers.

Claim 32. (New) The network device of claim 22, wherein the first universal frame mapper receiving the first frames formatted from the metallic link according to the first physical layer protocol and reassembles first Generic Framing Procedure (GFP) frames for processing by the network device, thus enabling GFP to be used to transmit data across the metallic link between the subscriber premises equipment and the network device.

Claim 33. (New) The network device of claim 32, wherein the GFP frames comprise a core header and a payload, said payload being configured to contain at least one of said protocol data units.

Claim 34. (New) The network device of claim 33, wherein the core header is configured to contain an indication of the length of the payload, wherein the payload is configured to contain a payload header, and wherein the payload header is configured to contain an indication of the type of protocol data unit contained in the payload.

Claim 35. (New) A network device, comprising:

- a first plurality of line interface units interfaced with first metallic links of a first type over which data is formatted for transmission using a first physical layer protocol;

- a first physical framer associated with the first line interface units to receive first signals from the first plurality of line interface units and create, from the first signals, first physical frames;

- a first GFP frame mapper associated with the first physical framer to receive the first physical frames and reassemble GFP frames therefrom without regard to a service associated with the physical frames;

- a second plurality of line interface units interfaced with second metallic links of a second type over which data is formatted for transmission using a second physical layer protocol;

Amendment Dated September 10, 2007  
Serial No. 10/657,654

a second physical framer associated with the second line interface units to receive second signals from the second plurality of line interface units and create, from the second signals, second physical frames; and

a second GFP frame mapper associated with the second physical framer to receive the second physical frames and reassemble GFP frames therefrom without regard to a service associated with the physical frames.

Claim 36. (New) The network device of claim 35, further comprising a switch fabric configured switch the GFP frames within the network device.

Claim 37. (New) The network device of claim 36, further comprising an optical interface to output the GFP frames onto an optical network link.

Claim 38. (New) The network device of claim 36, further comprising a set of GFP-service specific mappers to extract service protocol data units from the GFP frames.